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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/670,150	09/26/2000	Yoshiaki Kohno	P/1071-1173	4837

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EXAMINER

DOUGHERTY, THOMAS M

ART UNIT

PAPER NUMBER

2834

DATE MAILED: 09/04/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/670,150	KOHNO ET AL.
	Examiner	Art Unit
	Thomas M. Dougherty	2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 25 July 2002 .

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-3 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-3 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 26 September 2000 is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____ .
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) Notice of References Cited (PTO-892) 4) Interview Summary (PTO-413) Paper No(s). _____ .

2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) Notice of Informal Patent Application (PTO-152)

3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ . 6) Other: _____ .

Drawings

See paper 6 in regard to the drawings.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over any of Hanafy (US 5,945,770), Smith (US 5,548,564 or 5,744,898), Smith (US 5,329,496), Lindemann et al. (US 6,066,911) or Obara et al. (JP 57-193199) in view of Unami (US 5,925,971). Given the inventions of Hanafy, Smith, Smith and Lindemann et al. as noted in paper 9, none shows their piezoelectric oscillators extending in a Z-direction transverse to the plane defined by the x and y directions and which are laminated in the x or y direction of the main surface of the substrate.

Unami shows (fig. 16) an array comprising: a substrate (62); and a plurality of piezoelectric oscillators (10a-10d) fixed on a main surface of the substrate (62) in a matrix form, the main surface of the substrate (62) extending in a plane defined by transverse x and y directions, each of the piezoelectric oscillators (10a-10d) comprising: a plurality of piezoelectric layers (10a-10d) which extend in a z-direction transverse to the plane defined by the x and y directions and which are laminated in the x or y direction of the main surface of the substrate; inner electrodes (14 see fig. 2) disposed

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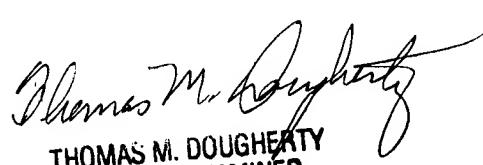
between the plurality of piezoelectric layers (10, also in fig. 2); and outer electrodes (also 14) formed on end faces of the plurality of piezoelectric layers (10). Unami does not note that his array is a sensor array.

It would have been obvious to one having ordinary skill in the art to employ the piezoelectric oscillators extending in a Z-direction transverse to the plane defined by the x and y directions and which are laminated in the x or y direction of the main surface of the substrate in the devices of any of Hanafy, Smith, Smith, Lindemann et al. or Obara et al., at the time their inventions were made, such as is shown by Unami, since this is a construction in which the piezoelectric resonators are easy to mount on a circuit board (substrate). See Unami's discussion at col. 4, ll. 6-8. Note that the forming method is not germane to the issue of patentability of the device itself. Therefore, this limitation (that of claim 2) has not been given patentable weight. Additionally note that it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed, e.g. as an ultrasonic probe (as in claim 3), does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987).

Direct inquiry concerning this action to Examiner Dougherty at (703) 308-1628.

fmnd
tmd

August 29, 2002


THOMAS M. DOUGHERTY
PRIMARY EXAMINER
GROUP 2100